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# GEOPHYSICAL AND WALKOVER SURVEY AT VICARAGE LANE, GRASBY, LINCOLNSHIRE (GVL00)

99/P/0896

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ARCHAEOLOGICAL PROJECT SERVICES

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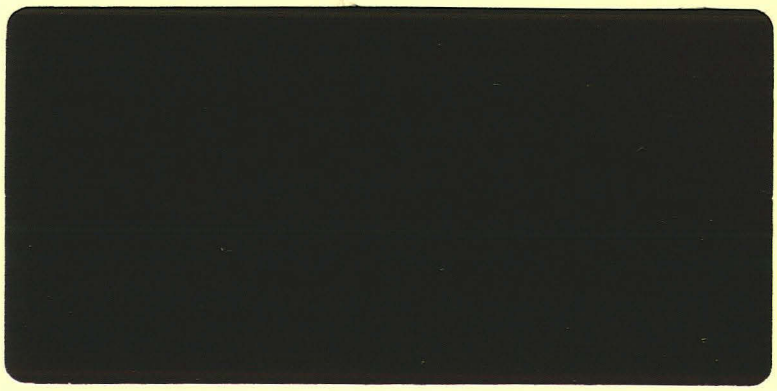

EVENTS LI 1407 LI 1408
SOURCES LI 6184

# GEOPHYSICAL AND WALKOVER SURVEY AT VICARAGE LANE, GRASBY, LINCOLNSHIRE (GVL00)

99/P/0896

Work Undertaken For
Mr & Mrs Macauley

October 2000

Report Compiled by
Steve Malone BSc (Hons), AIFA

National Grid Reference: TA 0868 0491

A.P.S. Report No. **160/00**

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## 1. SUMMARY

*Walkover and geophysical survey were undertaken to determine the archaeological implications of proposed residential development on land at Vicarage Lane, Grasby, Lincolnshire.*

*The site lies in the centre of the village of Grasby and consists of a single plot 30m long by 20m wide fronting onto Vicarage Lane. No archaeological remains have previously been identified at the site.*

*Detailed gradiometer survey was carried out at the site and a walkover survey was undertaken to assess ground conditions and the presence of archaeological remains.*

*Neither survey revealed remains of any great potential. Geophysical survey was restricted by the presence of building footings and electricity pylons. Even where survey was possible, strong ferromagnetic signals blanked out any other responses. The northern half of the plot comprises a level platform fronting the street but this is still occupied by outbuildings, the rear is too overgrown for features of any subtlety to be observed.*

## 2. INTRODUCTION

### 2.1 Background

A planning application renewal (99/P/089) by Mr and Mrs Macauley for residential development on land adjacent to No. 3 Vicarage Road, Grasby was approved by West Lindsey District Council. The site lies in the core of the village close to All Saints' church. Due to the possibility that archaeological remains might be present on the site, the Assistant Archaeology Officer, Lincolnshire County Council, recommended that walkover and geophysical survey take place prior to development.

Archaeological Project Services was commissioned to undertake this walkover and geophysical survey.

### 2.2 Topography and Geology

Grasby is located 8km southeast of Brigg and 5km northwest of Caistor in the administrative district of West Lindsey (Fig.1). The site is situated on Vicarage Lane at National Grid Reference TA 0868 0491 (Fig.2).

The village lies at the base of the chalk escarpment at *c.* 50m OD. The site and surrounding area slope generally down to the south and west Soils at the site are shallow well-drained silty soils of the Upton 1 Association developed on the Chalk (Hodge *et al.* 1984, 333).

## 3. PROJECT AIMS

The purpose of the surveys is to obtain information about the presence or absence of archaeology within the proposed development site to enable the Assistant Archaeology Officer, Lincolnshire County Council to formulate a scheme for the management of these remains.

## 4. METHODS

### 4.1 Geophysical Survey

Geophysical survey was undertaken in accordance with the English Heritage (1995) document *Geophysical Survey in Archaeological Field Evaluations*, Research and Professional Services Guideline **1**.

Survey was undertaken with a Geoscan FM36 fluxgate gradiometer. Readings were logged at 0.5m intervals along traverses 1m apart. The full results of the geophysical survey are presented in Appendix 1.

### 4.2 Walkover Survey

The site was visited on 2nd October 2000 and inspected for possible archaeological remains. A sketch plan was made of the observed features and forms the basis of Figure 3 here.

## 5. RESULTS

### 5.1 Geophysical Survey

The northern half of the plot contained a number of features which made it unsuitable for detailed magnetic survey, including the remnants of an agricultural building, a large void (cellar/well?) and two electricity pylons. The rear of the plot was overgrown with brambles and nettles, in places sufficiently impenetrable to prevent survey.

The survey results (Appendix 1, Figs 2-4) are dominated by strong ferromagnetic responses reflecting the disturbed nature of the garden deposits. The anomalies along the foot of the scarp slope between the garden and the platform at the front of the plot may reflect the tumbling of a revetment wall separating the two areas of the plot, but no other features can be discerned

### 5.2 Walkover Survey

The street frontage of the plot is almost wholly occupied by extant outbuildings and the concrete floor and surviving walls of another such structure. The ground is more or less level behind, but then drops at least 2m to the lower level rear of the plot. This area is completely overgrown with nettles and brambles and it was not possible to make useful observations. The scarp between these two levels was formerly revetted with stone, some of which still survives, but most of which has tumbled.

## 6 CONCLUSIONS

Walkover and geophysical survey of the proposed development area have not in this instance contributed significantly to our knowledge of the site.

Strong ferromagnetic signals overwhelm any other responses, even where geophysical survey was not prevented by the presence of standing structures, concrete surfaces or voids.

The street frontage of the plot is raised above the garden area to the rear. It remains the most likely area for any remains of earlier structures, close to the church and the heart of the medieval village but disturbance due to later development may have been considerable.

## 7. ACKNOWLEDGEMENTS

Archaeological Project Services would like to acknowledge the assistance Mr and Mrs Macauley who commissioned this report and arranged access. Geophysical survey was undertaken by Ian Brooks of Engineering Archaeological Services. Tom Lane and Paul-Cope Faulkner visited the site. The report was compiled by Steve Malone and edited by Tom Lane.

## 8. REFERENCES

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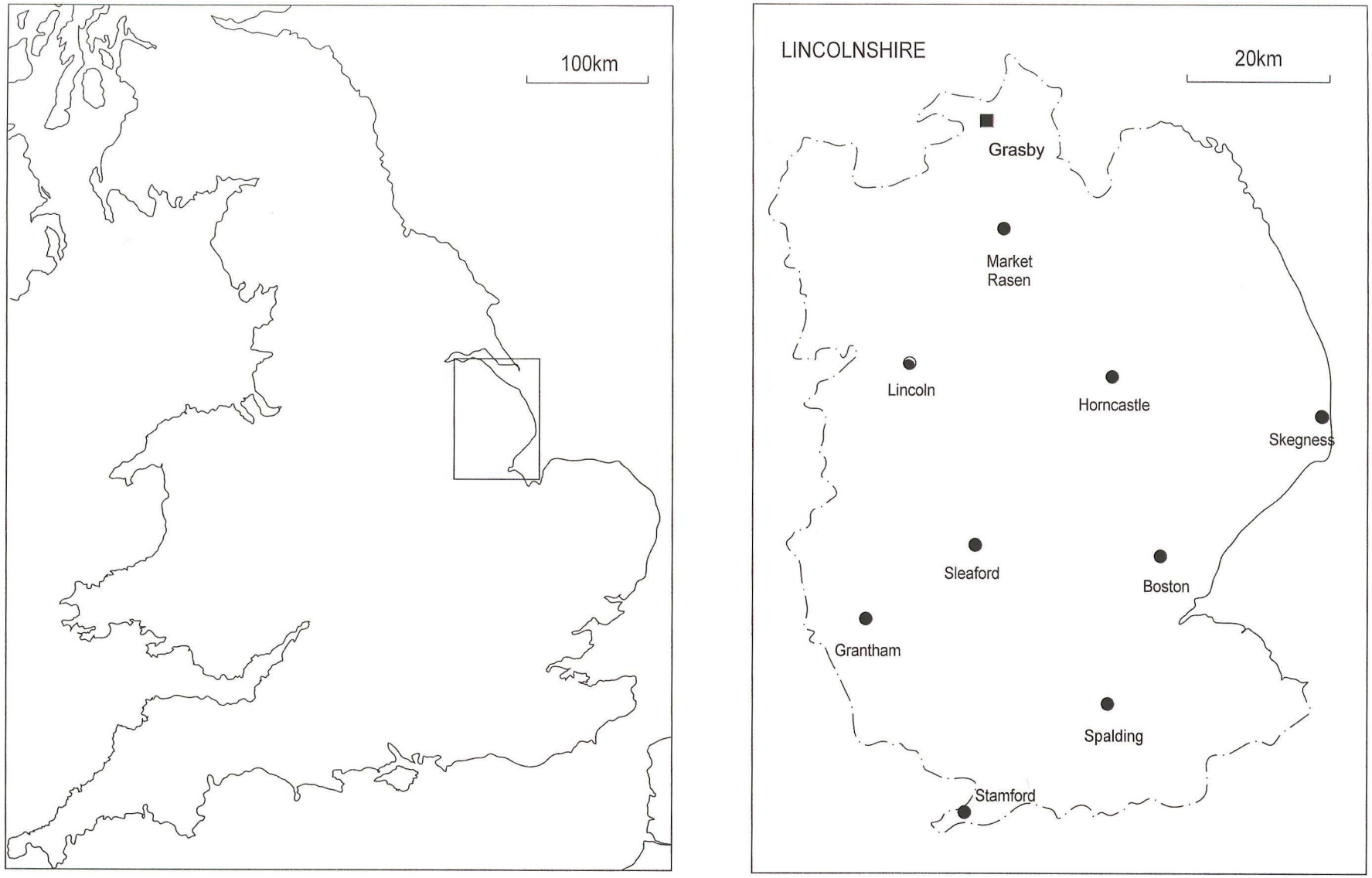


Figure 1 General Location Plan

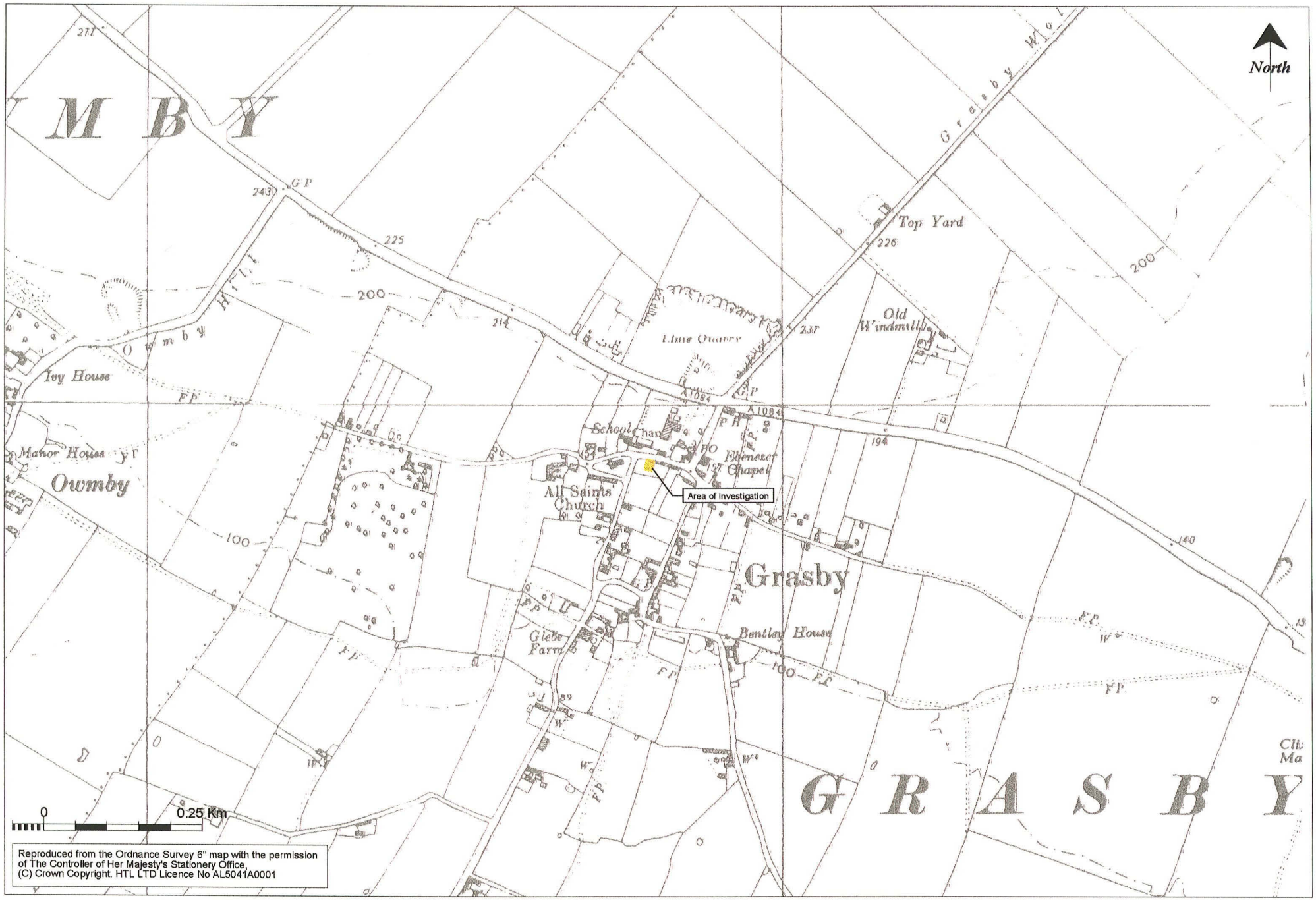


Figure 2 Site location


Figure 3: Sketch plan of features noted during walkover. Base plan 1:400. Features N.T.S.

Plate 1 View of site looking northwest

Plate 2 View of site looking south

# Appendix 1

# Geophysical Survey Report

*Survey Commissioned*
*by*
*Archaeological Project Services*

*Surveyed*
*by*
*I.P. Brooks*
*Engineering Archaeological Services Ltd.*

*registered in England*
*Nº 2869678*

# *Grasby, Vicarage Lane*
# *Geophysical Survey*

*September 2000*

## *CONTENTS*

# Grasby, Vicarage Lane. Geophysical Survey - Introduction:

***NGR***

***Centred on TA 08730475***

***Location and Topography***

*The area surveyed lies between 3 Vicarage Lane Grasby and the house identified as "Crimond" on the Ordnance Survey Map. The site is a single building plot which had a raised platform along the street frontage with a scarp slope leading to a sloping garden. The site was overgrown with extensive brambles and nettles.*

***Archaeological Background***

*The investigation is part of the planning restrictions imposed on the proposed development on the plot.*

***Aims of Survey***

*To evaluate by detailed survey the presence of potential archaeological features.*

***SUMMARY OF RESULTS***

*Only a limited area within the plot proved to be available for detailed. geophysical survey. This area proved to be highly disturbed with no discernible distinct anomalies.*

# Grasby, Vicarage Lane. Geophysical Survey -Results:

## *Survey Results:*

### *Area*

*The plot covers an area of approximately 21 x 39 m, however only two areas totalling 360 m² were available for survey. These were investigated using two 20 x 20 m sample squares*

### *Display*

*The results are displayed as Grey Scale Image and as X-Y Trace Plots. (Figures 2 and 3)*

## *Results:*

### *Complicating Factors:*

*The street frontage of the plot contained a number of features which made it unsuitable for detailed magnetic survey. The remnants of an agricultural building fronted the street and is shown as "A" on Figure 1. The platform for this, and probably other buildings also contained a large void (B), probably representing either a cellar or well. The platform also had two electricity pylons (C and D) within its area.*

*The lower 'garden' area was overgrown with brambles and nettles which were sufficiently high to prevent survey in some areas of the garden (Figure 4).*

### *Detailed Survey:*

*Parts of two 20 x 20 m grids were investigated. (Figure 4)*

*Large areas of the survey were dominated by disturbed ferromagnetic responses reflecting the disturbed nature of the garden deposits. The anomalies along the foot of the scarp slope between the garden and building platform probably reflects the tumbling of a revetment wall separating the two levels of the plot.*

*The large negative anomaly in the centre of the southern side was a metal drum within the adjacent boundary.*

### *Magnetic Susceptibility*

*Soil samples were taken from the area of detailed survey in order to assess the magnetic susceptibility of the soils. It was not possible to obtain a subsoil sample for comparison .*

| Sample | Volume susceptibility $\chi_v$ | Mass susceptibility $\chi_m$ |
|---|---|---|
| Grid 1 | 87 | 94.6 |
| Grid 2 | 170 | 197.7 |

*The reading are relatively high reflecting the degree of activity within the plot. The increased readings in Grid 2 are to be expected as this is within the building platform adjacent to the street frontage.*

# Grasby, Vicarage Lane. Geophysical Survey -Conclusions:

***Conclusions***

*It is a fundamental axiom of archaeological geophysics that the absence of features in the survey data does not mean that there is no archaeology present in the survey area only that the techniques used have not detected it.*

*The area investigated was highly disturbed as would be expected from a plot within the centre of the village. No discrete anomalies were located.*

# Grasby, Vicarage Lane. Geophysical Survey - Technical Information:

## *Techniques of Geophysical Survey:*

### *Magnetometry:*

*This relies on variations in soil magnetic susceptibility and magnetic remenance which often result from past human activities. Using a Fluxgate Gradiometer these variations can be mapped, or a rapid evaluation of archaeological potential can be made by scanning.*

### *Resistivity:*

*This relies on variations in the electrical conductivity of the soil and subsoil which in general is related to soil moisture levels. As such, results can be seasonally dependant. Slower than Magnetometry this technique is best suited to locating positive features such as buried walls that give rise to high resistance anomalies.*

### *Resistance Tomography*

*Builds up a vertical profile or pseudosection through deposits by taking resistivity readings along a transect using a range of different probe spacings*

### *Magnetic Susceptibility:*

*Variations in soil magnetic susceptibility occur naturally but can be greatly enhanced by human activity. Information on the enhancement of magnetic susceptibility can be used to ascertain the suitability of a site for magnetic survey and for targeting areas of potential archaeological activity when extensive sites need to be investigated. Very large areas can be rapidly evaluated and specific areas identified for detailed survey by gradiometer.*

## *Instrumentation:*

### *1. Fluxgate Gradiometer - Geoscan FM36*

### *2. Resistance Meter - Geoscan RM4/DL10*

### *3. Magnetic Susceptibility Meter - Bartington MS2*

### *4. Geopulse Imager 25 - Campus*

## *Methodology:*

*For Gradiometer and Resistivity Survey 20m x 20m or 30m x 30m grids are laid out over the survey area. Gradiometer readings are logged at either 0.5m or 1m intervals along traverses 1m apart. Resistance meter readings are logged at 1m intervals. Data is down-loaded to a laptop computer in the field for initial configuration and analysis. Final analysis is carried out back at base.*

*For scanning transects are laid out at 10m intervals. Any anomalies noticed are where possible traced and recorded on the location plan.*

*For Magnetic Susceptibility survey a large grid is laid out and readings logged at 20m intervals along traverses 20m apart, data is again configured and analysed on a laptop computer.*

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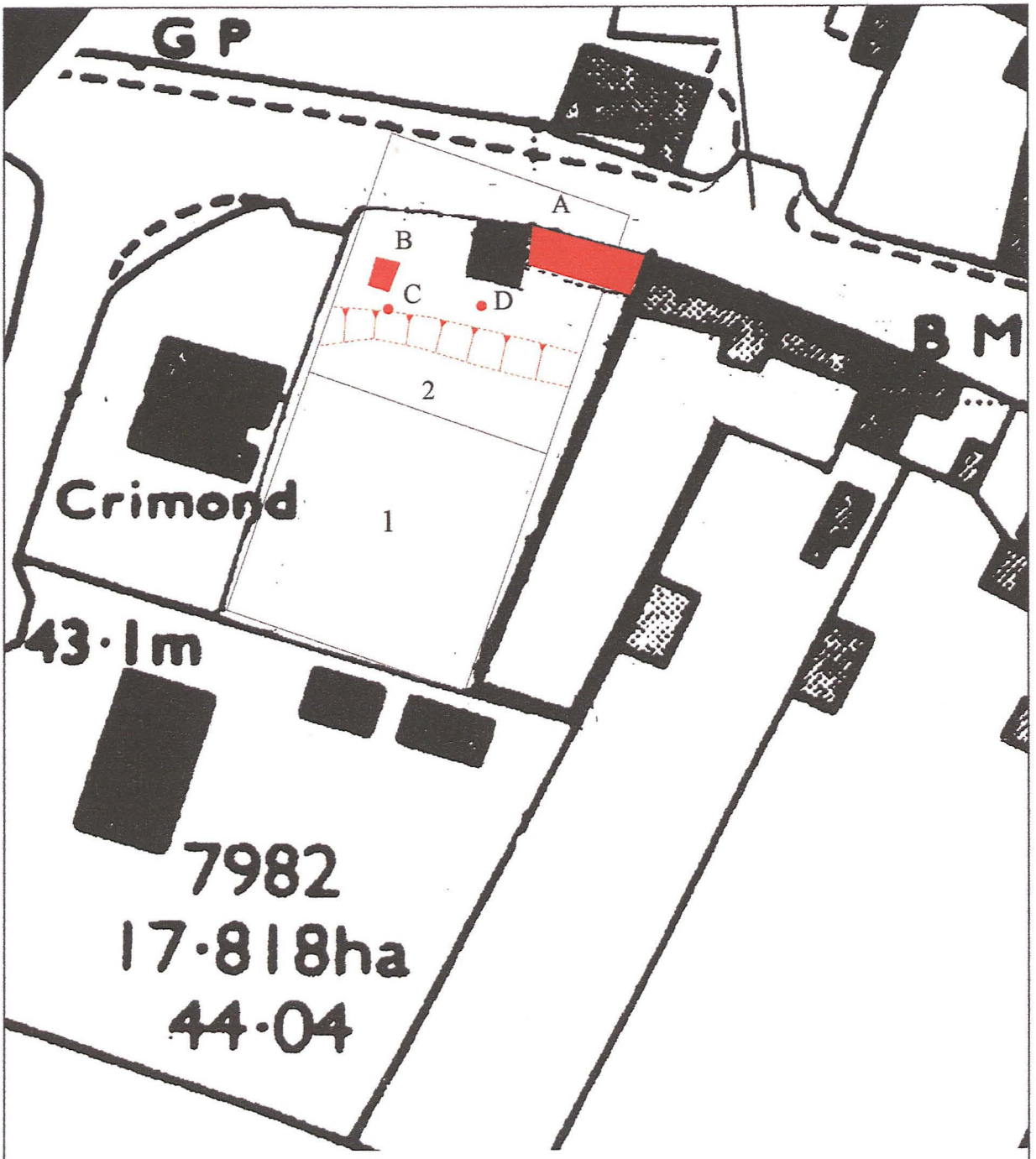


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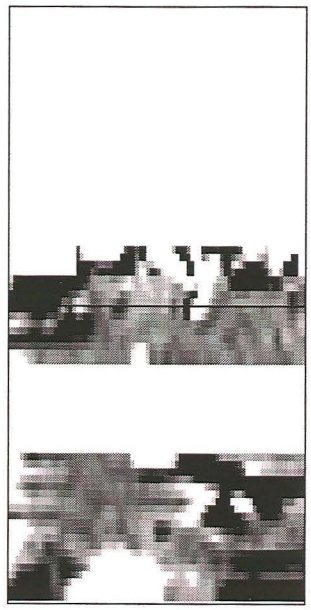
| | |
|---|---|
| **Figure 1: Location and Modern Restrictions** | **Grasby, Vicarage Lane Scale 1:500** |



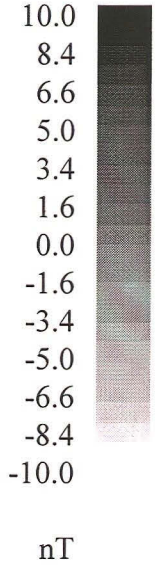



**Figure 2: Grasby, Vicarage Lane**
**Grey Scale Plot. Scale 1:500**

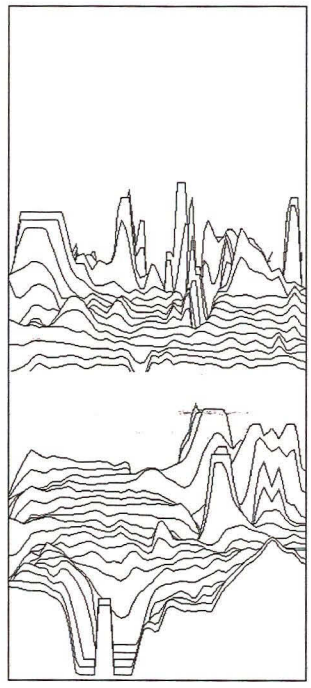


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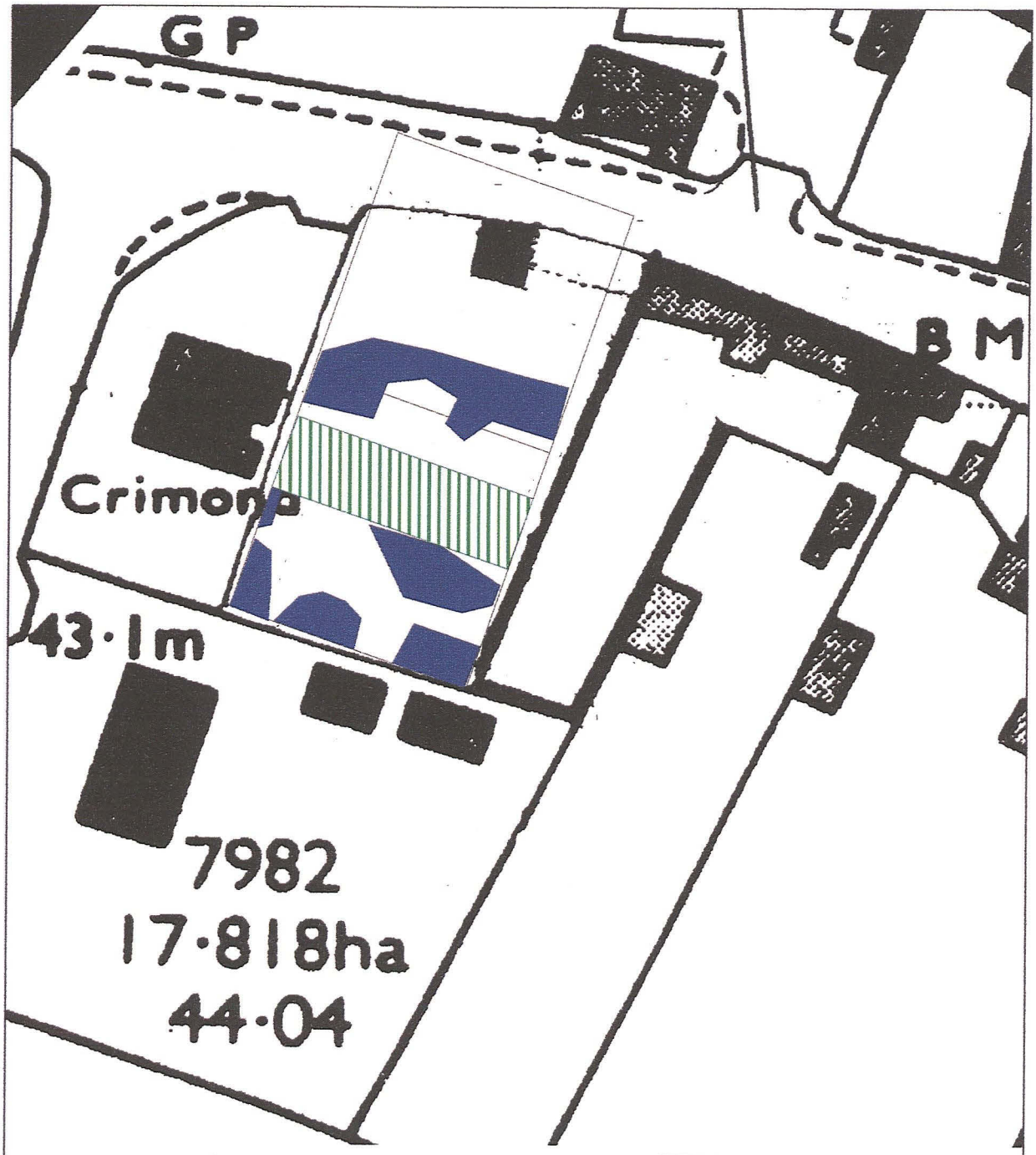
**Figure 3: Grasby, Vicarage Lane**
**X - Y Plot. Scale 1:500**

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| | |
|---|---|
| **Figure 4: Interpretation** | **Grasby, Vicarage Lane**<br>**Scale 1:500** |

# Appendix 2
# Specification for Geophysical and Walkover Survey

## 1 SUMMARY

*1.1 A planning application renewal (99/P/089) for residential development on a site in Grasby, Lincolnshire has been approved by West Lindsey District Council with a requirement for archaeological survey.*

*1.2 The proposed development is in an area of archaeological interest with earthwork remains of a Shrunken Medieval Village in the vicinity of the site.*

*1.3 A walkover survey will be undertaken in order to identify any features within the proposed development area which might relate to medieval occupation of the site.*

*1.4 Geophysical survey will be undertaken over the complete extent of the application area using a fluxgate gradiometer.*

*1.5 On completion of the fieldwork the geophysical results will be analysed by computer. A report giving a summary of results will be produced. This will include plans of the location of the survey and computer-generated plots of the survey results. Additionally, an interpretive diagram of the results will be included in the report.*

*1.6 The findings of the geophysical survey will be combined with those of the walkover survey for the final report.*

## 2 INTRODUCTION

2.1 This document comprises a specification for the walkover and geophysical survey of land adjacent to No.3 Vicarage Lane, Grasby, Lincs. The site is located at national grid reference TA 087 049.

2.2 Following the requirements of the archaeological brief, this document contains the following parts:

2.2.1 Overview

2.2.2 Aims and objectives

2.2.3 Stages of work and methodologies

2.2.4 List of specialists

2.2.5 Programme of works and staffing structure of the project

## 3 SITE LOCATION

3.1 Grasby is located 8km southeast of Brigg and 5km northwest of Caistor in the administrative district of West Lindsey. The site is situated on Vicarage Lane at national grid reference TA 087 049.

## 4 PLANNING BACKGROUND

4.1 A planning application renewal (99/P/089) for residential development has been approved by West Lindsey District Council. Due to the possibility that archaeological remains may be present on the site, the Assistant Archaeology Officer, Lincolnshire County Council, has recommended that walkover and geophysical survey take place prior to development.

## 5 SOILS AND TOPOGRAPHY

5.1 The site and surrounding area is on a gentle slope down to the south, and lies at *c.* 50m OD. Soils at the site are shallow well-drained silty soils of the Upton 1 Association developed on the Chalk (Hodge *et al.* 1984, 333).

## 6 THE ARCHAEOLOGY

6.1 The earthwork remains of a Shrunken Medieval Village are visible on air photographs in the vicinity. It is possible that the site of the proposed buildings was also occupied in medieval times.

## 7 AIMS AND OBJECTIVES

7.1 The aim of the geophysical and walkover survey will be:

7.1.1 to gather sufficient information to determine the presence or absence of archaeology within the application area to enable the Lincolnshire County Archaeologist to formulate a scheme for the management of these remains.

7.2 The objectives will be to establish:

7.2.1 the form of the archaeological features present within the site;

7.2.2 the spatial arrangements of the archaeological features present on the site;

7.2.3 the density of archaeological features present in the investigation area

## 8 WALKOVER SURVEY

8.1 An experienced archaeologist will visit the site to inspect the site for any remains of earthworks which might relate to former occupation of these plots. Information will be recorded by sketch-plotting and reproduced on plans integrating the results of this survey with those of the geophysical survey.

## 9 GEOPHYSICAL SURVEY

9.1 Reasoning for this technique

9.1.1 The geophysical survey of the site will use fluxgate gradiometer. This technique enables large areas to be investigated rapidly and the results facilitate the rapid identification of the likely archaeological potential of the site.

9.1.2 The effectiveness of the technique is limited by background magnetic susceptibility and the ground cover which ideally should be minimal.

9.2 Methodology

9.2.1 The entire area of the site will be surveyed by an experienced operator to identify areas of enhanced magnetic activity. The survey areas will divided into 20m squares and 800 readings will be logged per square.

9.3 Report

9.3.1 A report will be prepared on completion of the survey detailing the methodologies used and the results of the work. The areas and nature of archaeological activity will be shown on a series of computer generated plots and the anomalies encountered will be interpreted. The report will be prepared in accordance with the English Heritage (1995)

document *Geophysical Survey in Archaeological Field Evaluations*, Research and Professional Services Guideline **1**.

## 10 REPORT DEPOSITION

10.1 Copies of the geophysical and walkover survey report will be sent to: the client, the Lincolnshire County Archaeologist; West Lindsey District Council and the Lincolnshire County Sites and Monuments Record.

## 11 PUBLICATION

11.1 A report of the results of the walkover and geophysical survey will be published in Heritage Lincolnshire's annual report and an article of appropriate content will be submitted for inclusion in the journal of the Society for Lincolnshire History and Archaeology.

## 12 CURATORIAL MONITORING

12.1 Curatorial responsibility for the project lies with the Assistant Archaeologist Lincolnshire County Council. Fourteen days notice in writing will be given prior to the commencement of the project to enable them to make appropriate monitoring arrangements.

## 13 VARIATIONS TO THE PROPOSED SCHEME OF WORKS

13.1 Variations to the scheme of works will only be made following written confirmation from the archaeological curator that such alterations are acceptable.

13.2 Should the archaeological curator require any additional investigation beyond the scope of the brief for works, or this specification, then the cost and duration of those supplementary examinations will be negotiated between the client and the contractor.

## 14 SPECIALISTS TO BE USED DURING THE PROJECT

| Task | Body to be undertaking the work |
|---|---|
| Geophysical survey | Engineering Archaeological Services |

## 15 PROGRAMME OF WORKS

15.1 The geophysical survey should involve approximately one day of fieldwork, undertaken by two specialists (see 14 above), followed by report production within 7 days. The project will be managed by Archaeological Project Services. The walkover survey will require a field visit by an experienced member of staff followed by report production integrating the results of both surveys.

## 16 INSURANCES

16.1 Archaeological Project Services, as part of the Heritage Trust of Lincolnshire, maintains Employers Liability Insurance of £10,000,000, together with Public and Products Liability insurances, each with indemnity of £5,000,000. Copies of insurance documentation can be supplied on request.

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## 18 BIBLIOGRAPHY

English Heritage, 1995 *Geophysical survey in archaeological field evaluation*, Research and Professional Services Guideline **1**

Hodge, CAH, Burton, RGO, Corbett, WM, Evans, R, and Seale, RS, 1984 *Soils and their use in Eastern England*, Soil Survey of England and Wales **13**

Specification: Version 1, 9th February 2000